

II. IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1 - 83 (Canceled).

84. (New) A combination, comprising (i) a solution of oxidizing agents selected from alkali metal compounds of hydroxide, nitrate, and nitrite, and mixtures thereof; (ii) an intermediate water insoluble dicarboxylate or iron phosphate coated ferrous metal substrate in contact with the aqueous solution; and (iii) a coating of magnetite formed on the intermediate water insoluble dicarboxylate or iron phosphate coated ferrous metal substrate upon contact with the aqueous solution.

85. (New) The aqueous solution of claim 84, wherein the aggregate concentration in grams per liter of water of the oxidizing agents is in the range of about 35 to about 280.

86. (New) The aqueous solution of claim 84, wherein the oxidizing agents are sodium hydroxide, sodium nitrate, and sodium nitrite.

87. (New) The solution of claim 86, wherein the range of concentration in grams per liter of water is for (i) sodium hydroxide, about 25 to about 200; (ii) sodium nitrate, about 9 to about 70; and (iii) sodium nitrite, about 1 to about 10.

88. (New) The combination of claim 87, having a temperature in the range of about 70 degrees to about 220 degrees Fahrenheit.

89. (New) The combination of claim 87, also comprising a component selected from an accelerator, a metal chelator, a surface tension reducer, and mixtures thereof.

90. (New) The combination of claim 89, wherein the accelerator is selected from organic and inorganic nitro salts, alkali metal compounds of citrate, molybdate, polyphosphate, vanadate, chlorate, tungstate, thiocyanate, dichromate, stannate, stannous sulfide, stannic sulfide, thiosulfate, benzothiazyl disulfide, ethylene thiourea, stannous chloride, stannic chloride, and mixtures thereof.

91. (New) The combination of claim 89, wherein the metal chelator is selected from alkali metal salts of thiosulfate, sulfide, ethylene diamine tetraacetate, thiocyanate, gluconate, citrate, and tartrate and mixtures thereof.

92. (New) The combination of claim 89, wherein the surface tension reducer is selected from alkylnaphthalene sulfonate, alkylnaphthalene sodium sulfonate, and related compounds which are stable in high pH environments.

93. (New) The combination of claim 90, wherein the accelerator is at a concentration in the range of about 0.05 to about 0.5 grams per liter.

94. (New) The combination of claim 91, wherein the metal chelator is at a concentration in the range of about 1.0 to about 10.0 grams per liter.

95. (New) The combination of claim 92, wherein the surface tension reducer is at a concentration in the range of about 0.025 to about 0.2 grains per liter.

96. (New) The combination of claim 89 at a pH in the range of about 12.0 to about 14.0.

97. (New) A combination, comprising (i) an aqueous solution of sodium hydroxide in the range of about 25 to about 200 grams per liter of water, sodium nitrate in the range of about 9 to about 70 grams per liter of water, and sodium nitrite in the range of about 1 to about 10 grams per liter of water and (ii) an intermediate water insoluble dicarboxylate or iron phosphate coated ferrous metal substrate in contact with the aqueous solution.

98. (New) The combination of claim 97, wherein the temperature of the combination is in the range of about 70 degrees Fahrenheit to about 220 degrees Fahrenheit.

99. (New) The combination of claim 97, also comprising a magnetite coating formed on the intermediate water insoluble dicarboxylate or iron phosphate coated ferrous metal substrate upon contact with the aqueous solution.

100. (New) An aqueous solution comprising the following concentrations, in grams per liter of water: (i) sodium hydroxide, about 100; (ii) sodium nitrate, about 35; (iii) sodium nitrite, about 5; (iv) sodium thiosulfate, about 5; (v) sodium molybdate, about 5; (vi) stannous chloride, about 0.2; and (vii) alkyl naphthalene sodium sulfonate, about 0.1, for oxidizing at least a portion of an iron/oxygen enriched intermediate coating on a ferrous substrate to magnetite.

101. (New) The solution of claim 100 at a temperature of about 200 degrees Fahrenheit.

102. (New) An aqueous solution comprising the following concentrations, in grams per liter of water: (i) sodium hydroxide, about 100; (ii) sodium nitrate, about

27; (iii) sodium nitrite, about 4-5; (iv) ethylene thiourea, about 0.6; (v) stannous stannic chloride, about 0.2; (vi) sodium dichromate, about 0.3; and (vii) alkyl naphthalene sodium sulfonate, about 0.1 grams, for oxidizing at least a portion of an iron/oxygen enriched intermediate coating on a ferrous substrate to magnetite.

103. (New) The solution of claim 102 at a temperature of about 180 degrees Fahrenheit.

104. (New) An aqueous solution comprising the following concentrations, in grams per liter of water: (i) sodium hydroxide, about 100; (ii) sodium nitrate, about 35; (iii) sodium nitrite, about 5; (iv) sodium thiosulfate, about 5; (v) sodium tungstate, about 5; (vi) sodium stannate, about 0.2; and (vii) alkyl naphthalene sodium sulfonate, about 0.1, for oxidizing at least a portion of an iron/oxygen enriched intermediate coating on a ferrous substrate to magnetite.

105. (New) The solution of claim 104 at a temperature of about 200 degrees Fahrenheit.

106. (New) An aqueous solution comprising the following concentrations, in grams per liter of water of: (i) sodium hydroxide, about 25 to about 200; (ii) sodium nitrate, about 9 to about 70; (iii) sodium nitrite, about 1 to about 10; (iv) sodium thiosulfate, about 1 to about 10; (v) sodium molybdate, about 1 to about 10; (vi) stannous chloride, about 0.05 to about 0.5; and (vii) alkyl naphthalene sodium

sulfonate, about 0.2, for oxidizing at least a portion of an iron/oxygen enriched intermediate coating on a ferrous substrate to magnetite.

107. (New) An aqueous solution comprising the following concentrations, in grams per liter of water: (i) sodium hydroxide, about 100; (ii) sodium nitrate, about 35; (iii) sodium nitrite, about 5; (iv) sodium thiosulfate, about 5; (v) sodium molybdate, about 5; (vi) stannic chloride, about 0.2; and (vii) alkyl naphthalene sodium sulfonate, about 0.1, for oxidizing at least a portion of an iron/oxygen enriched intermediate coating on a ferrous substrate to magnetite.

108. (New) The solution of claim 107 at a temperature in the range of about 160 to about 220 degrees Fahrenheit.